Subsurface Drain

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 606

DEFINITION

A Subsurface Drain is a conduit, such as corrugated plastic tubing, tile, or pipe, installed beneath the ground surface to collect and/or convey drainage water.

PRACTICE INFORMATION

The purpose of a subsurface drain is to:

- Improve the environment for vegetation
- Reduce erosion
- Improve water quality
    - Regulate ground water and water table flows
    - Relieve artesian pressures
    - Assist in leaching saline soil
    - Regulate subirrigated areas and waste disposal areas
- Collect ground water for beneficial use
- Remove water from heavy use areas such as recreation areas, or around buildings
- Regulate water to control health hazards caused by pests

The subsurface drain practice is used in areas having a high water table where the benefits of lowering the level are worth the expense. The practice also applies to areas that will benefit from controlling ground water and/or surface runoff. The soil must meet certain suitability requirements and an adequate outlet must be available to assure the drain will function properly.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: *recorded in Microsoft word 6.0 - use tabs to change cells/fields*

STATE	Iowa	FIELD OFFICE		DATE	5/15/97
PRACTICE: 606 Subsurface Drain			NOTES:		
RESOURCE: SOIL **RESOURCE CONCERN: EROSION**			**Help Message: Click on form field for choice lists.** **Refer to Microsoft Word Users Guide (Creating a form)**		
RESOURCE INDICATORS			**PHYSICAL EFFECTS**		
SHEET AND RILL			moderate reduction in sheet and rill erosion		
WIND			moderate reduction in wind erosion		
EPHEMERAL GULLY			slight reduction in ephemeral gully erosion		
CLASSIC GULLY			N/A		
STREAMBANK			N/A		
IRRIGATION INDUCED			N/A		
SOIL MASS MOVEMENT			N/A		
ROADBANK/CONSTRUCTION			N/A		
OTHER					
RESOURCE CONCERN: **SOIL CONDITION**					
SOIL TILTH			slight improvement in soil tilth		
SOIL COMPACTION			slight reduction in soil compaction		
SOIL CONTAMINATION					
• SALTS			significant reduction in soil salinity		
• ORGANICS			significant decrease in organic contaminates		
• FERTILIZERS			significant reduction in contaminates from fertil.		
• PESTICIDES			significant reduction in pesticide contam./soil		
• OTHER					
DEPOSITION/DAMAGE					
• ONSITE			slight reduction /onsite deposition damage		
• OFFSITE			slight decrease/offsite deposition damage		
DEPOSITION/SAFETY					
• ONSITE			slightly improve onsite safety/deposition		
• OFFSITE			slightly improve offsite safety hazard/deposition		
OTHER					
RESOURCE: **WATER** RESOURCE CONCERN: **WATER QUANTITY**					
SEEPS			moderate reduction in seepage hazard		
RUNOFF/FLOODING			moder. decrease in runoff/flooding		
EXCESS SUBSURFACE WATER			significant reduction in excess subsurface water		
INADEQUATE OUTLETS			significant improvement in H20 outlet concern		
WATER MGT. IRRIGATION					
• SURFACE			N/A		
• SPRINKLER			N/A		
WATER MGT. NON-IRRIGATED			significant improvement in moisture use		
RESTRICTED FLOW CAPACITY (H20 convey.)					
• ONSITE			slight improvement in onsite drainage		
• OFFSITE			slight improvement in offsite drainage		
RESTRICTED STORAGE			moderate reduction in sedimentation of H20 stroage		

RESOURCE: **WATER** RESOURCE CONCERN**: WATER QUALITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
GROUNDWATER CONTAMINANTS	
• PESTICIDES	moderate reduction GWater contaminants/pesticides
• NUTRIENTS AND ORGANICS	moderate poten. decrease/GWater contam./nutr,organ
• SALINITY	significant poten. decrease/GWcontam/salinity
• HEAVY METALS	moderate poten.decrease/GWater contam./heavy metal
• PATHOGENS	moderate poten. decrease/GWater contam./pathegens
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	slight increase in SWcontam./pesticides
• NUTRIENTS AND ORGANICS	slight increase in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	sign. reduction in SWater contam./salinity
• HEAVY METALS	moderate reduction in SWater contam./heavy metals
• WATER TEMPERATURE	N/A
• PATHOGENS	moderate decrease in SWater contam./pathegens
AQUATIC HABITAT SUITABILITY	moderate inprovement in Aqua. Hab. Suit.
OTHER	
RESOURCE: **AIR** RESOURCE CONCERN: **AIR QUALITY**	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	slight decrease in airborn sed.&smoke/safety
• OFFSITE SAFETY	slight decrease in airborn sed.&smoke part./safety
• ONSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust and smoke
• OFFSITE STRUCT. PROBLEMS	slight decrease in struc. problems/dust&smoke
• ONSITE HEALTH	slight decrease in onsite health/dust and smoke
• OFFSITE HEALTH	slight improvement in offsite health
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	slight decrease in airborn sediment/convey. prob.
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	N/A
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: **AIR CONDITION**	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	N/A
OTHER	

RESOURCE: **PLANT** RESOURCE CONCERN: **SUITABILITY**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
SITE ADAPTATION	moder. improvement in plant suitability/site adapt
PLANT USE	sign. improvement in plant suit. for intended use
OTHER	
RESOURCE CONCERN: **CONDITION**	
PRODUCTIVITY	sign. improvement in plant cond./ productivity
HEALTH, VIGOR, SURVIVAL	sign. improvement in plant health,vigor, survival
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
ESTAB., GROWTH, HARVEST	moder. improvement in plant estab.,growth,harvest
NUTRIENT MANAGEMENT	moder. improvement in plant nutrient management
PESTS	sign. improvement in plant pest management
THREAT/ENDANGERED PLANTS	situational
OTHER	
RESOURCE: **ANIMAL** RESOURCE CONCERN: **HABITAT**	
FOOD	insignficant
COVER/SHELTER	insignificant
WATER (QUANTITY & QUALITY)	insignificant
OTHER	
RESOURCE CONCERN: **MANAGEMENT**	
POPULATION BALANCE	insignificant
THREAT/ENDANGERED ANIMALS	insignificant
HEALTH	insignificant
OTHER	
RESOURCE: **HUMAN** RESOURCE CONCERNS**: ECONOMIC CONSIDERATIONS**	
PLAN / COST EFFECTIVENESS	moderately cost effective
CLIENT FINANCIAL CONDITION	moderately cost effective
MARKETS FOR PRODUCTS	N/A
AVAILABLE LABOR	insignificant
AVAILABLE EQUIPMENT	insignificant

RESOURCE: **HUMAN** RESOURCE CONCERN: **SOCIAL CONSIDERATIONS**	
RESOURCE INDICATORS	**PHYSICAL EFFECTS**
PUBLIC HEALTH AND SAFETY	mod. improvement in public health & safety
PRIVATE/PUBLIC VALUES	mod. inprovement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
RESOURCE CONCERN: **CULTURAL CONSIDERATIONS**	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	